CONFIDENTIAL & A/C PRIVILEGED: Internal Briefing Document

THIS DOC IS NO LONGER BEING UPDATED - PLEASE REACH OUT TO THE FOLLOWING FOR THE LATEST:
Nick Montaperto@, Caity Downey@, Mary Liz@

Call Summary/Key Takeaways
- Facebook has shared detail around the specific use-cases and business drivers behind the need for INSTALL_PACKAGE_UPDATES. Jim is providing short term waivers to OEMs to unblock RSA deals.
- Facebook has committed to a continued engagement with Google to identify gaps between current installer use cases and Play functionality with the long term goal of replacing installer functionality with Play APIs. Next step is to check-in in 2 weeks.
- If we reach an impasse during the process due to "philosophical differences", this issue will escalate to the Zuck/Sundar level. Likelihood of this is high due to current understanding of how each company prioritizes user agency vs. safety.
- **Concern:** Despite years of heavy product collaboration with Play and Android teams, Facebook has not been transparent with their preload program and how they have been using the installer.

Attendees
- FB: Marc, Jim, Iris, Sam
- G: Sagar, Purnima, Ed, Narayan, Charmaine, Mary Liz, Nick

Next Steps/AIs
- [Sagar] Internal sync with Play Store to provide updates and discuss use cases
- [Nick/Iris] Schedule time for Sam to chat with Play Product Lead re: coordinating signals (even if not programatically) on Auto Updates
- [Sam] to think about the Dynamic Preload
- Two new columns in the shared doc: "Gaps with Play functionality," and "Gaps with OEMs."
- [Sagar] Close communication gap with OEMs - Oppo, Vivo, and OnePlus, work with Jim to provide waivers
- [Nick/Iris] Set up another chat in 2 weeks

Notes
- [Purnima] Kickoff & framing - T&S goals and Play/Android principles; T&S is a first principle for us (and we think you); this permission discussion fits into this.
- [Marc] We are all in agreement on T&S; I'm not quite clear on are the tactics that G is using to manage this in this case (e.g. AdUps, OEM installers, Carrier installers, 3P carriers); what hasn't been entirely clear to me is what is Google actually doing? This is more opaque to us
  - P: our commitment to changing permissions openly stands. The RSA conversations were suboptimal/ the sequence was off with how you found out; we acknowledge this.
    - This was a subset / corner cases of devices
  - [Sagar] Opt-in program for OEMs to build devices, specifically focusing on security. Not at the GMS or CDD level at all. It is our intent to clean the space up.
    - Hope is to codify use cases applicable to the ecosystem; not just FB & G & SS
    - We know there will be some exceptions, but we just need to codify them > make applicable to the ecosystem
- [Marc] we understand but don't want to focus on the timing of us finding out
- [Sagar] Looking to create principles on whether certain uses of the permission (stores) are good or bad actors. E.g. If a store has X% malware, it shouldn't be allowed to distribute apks.

1

EXHIBIT 1546

EXHIBIT 1546-001

- [Sam] Where is the demand/ focused set of devices coming from: [Sagar] Mostly Europe, esp in response to Huawei situation
- [Sam] Preload Program Context- our teams have not be in touch about this program the past few years; I agree w/ everything you are saying and I understand the risks an installer presents
  - Program been running for 5 yrs with biggest OEMs/Carriers across the world
  - Very heavy-duty paperwork with partners re: what the program is and how it works
  - Standard program, universal non-custom program, with all of their partners with security, privacy and legal bars
  - We love Android because of these capabilities (ability to experiment to identity and improve core FB product functionality)
- [Purnima] How do we move forward on this?
- [Sam] We can't see how your updater interacts with ours
- [Marc] Goal for today is to determine if we have philosophical differences here? If so Zuck will probably need to hear it from Sundar.
- It feels like the match is burning more quickly on the Google side, if we have 3 months to work through this.
- Still is some confusion on the OEM side as they are coming to FB saying "Google has put this piece of paper in front of us."
- [Sagar] Now that we have these use cases we can get these to Jim and get clarity with the OEMs. Seems like there's still a miscommunication happening here.
- [Purnima] Piece of paper is optional and only touches a small subset of devices.
- Use Cases
  - **Auto updates for FB apps** What are the principles (and logic) are applying these updates:
    - Difficult to programmatically collaborate w/ Play
    - There are no APIs or formal collaboration
    - Let's let Play update 3 days roughly > we'll do app updates only over wifi >
      - Can we agree on conditions and rules? We don't even know if auto-updates are turned off/ we don't have visibility
  - **X-App install -** benefits: not seeing Play store; can zero route the download; can A/B test the messaging
  - **Dynamic Preload-** can FB have both installed and then delete?
    - [Sagar] Seems like a case where we can address the business problem and reduce carve outs for specific cases.
    - [Sam] If all OEMs are bought it, it should be ok.
  - **App Install Ads Optimizations**
    - [Sam] we are strong data here to show higher propensity to install as well as better LTR within the apps

Comment [1]: These seem less like "use cases" to me and more like "why off play updates / installs increase conversion for people to use FB" - can you help me (and anyone else reading this doc) understand why this is important from a user perspective? i.e. let's just spitball that no other developer gets access to this functionality....what do they / we lose except active users of FB apps?

Maybe I misinterpreted what "use cases" were going to be but I expected more data to support why not getting a waiver would negatively impact users (vs. negatively impacting business metrics which is obvious)

Comment [2] Sarah Karam (Google) They are use cases for the install permission, which is what we asked for. They have not provided examples/data of user harm primarily bc we disagree philosophically on what "harm" is. FB would say users not being on the freshest version is "harm" which we tend to disagree with when it comes with the power to install packages behind the scenes. We are kicking off further conversations with Paul B's team to investigate exactly what the gap is btw these examples and Play functionality so we have all the facts before making a decision on the long-term strategy.

Comment [3]: can you clarify what this means? higher propensity when __ is true? what is __?

Comment [4]: We ran out of time and he didn't share details. Will follow up.

Meeting Background: Facebook has expressed that they would strongly prefer to chat with us in person to properly explain the nuance and complexity of their preload program and how they are currently utilizing the INSTALL_PACKAGES permission. They have deprioritized the "urgent" need to relieve the pressure on the OEM side and are instead prioritizing working with us so we properly understand:

- Exactly how the permission is used and why it's necessary
- Why granting continued usage of the permission is good for users and Android as a whole

Partnerships Perspective: Google has little to lose by meeting with Facebook and doing a lot of listening, now that the urgent OEM concern is on the back burner. It's also a good opportunity to explain what Google are doing and why - FB still frequently mentions how we are "locking down the platform" and "turning into Apple." This is another opportunity to share and build empathy behind the challenges we face with T&S and deliver a clear narrative on our principles guiding these

2

decisions and the direction we are taking Android. FB will come to the meeting with a thorough and detailed presentation on exactly what they are doing and why.

Meeting Strategy:
- In general, we let Facebook do most of the talking. Purnima kicks off the conversation with an overview of context and the intention behind our actions to restrict access to certain permissions.
- **Roles**
  - **Purnima/Sagar** will reinforce Google's message re: why we are taking steps to restrict access to these permissions, why our position has changed since we came to an agreement on this 4-5 years ago, and what our core values are w.r.t the direction we are taking Android and the developer ecosystem.
  - **PM** is in active listening mode. Asking many clarifying questions without proposing solutions. The goal is to gain understanding.
  - **BD** will act as moderators of the discussion and act as timekeepers/facilitators.
- **Important Notes**
  - Google should **not** commit to anything in the meeting other than careful consideration and further evaluation of their proposals.
  - We should be careful not to potentially "lead on" Facebook with promises of ongoing collaboration or further meetings to discuss the topic.

FB Attendees:
- Marc Shedroff - VP Partnerships
- Iris Chae - Strategic Alliances (day to day POC)
- Sam Collins - PM Lead, Installer

Desired Outcomes:
- **Facebook Goals**: The Facebook team is hoping to get an exception to continue using "not get in the weeds but have a high level strategic discussion on our program," with the presumed goal of authorization to continue to use INSTALL_PACKAGES.
- **Google Goals:**
  - Facebook hears and internalizes the message Don conveyed to Marne: "*Things are not going back to the way they were.*" Facebook understands our principles and motivations: to protect users and the ecosystem.
  - Facebook understands and respects the stakeholders involved and that our decision making process is applied fairly across the ecosystem.
  - Google is hoping to come away with a clear understanding of the business objectives and strategy behind the program, and precisely how/why Facebook wishes to continue to use the INSTALL_PACKAGE_UPDATES permission for preloads.

FB execs are very frustrated (including Zuck) for a few reasons. Their perception:
- G is overreaching/ interjecting involvement; "This is our own program we have between OEM and carriers"
- G is switching positions- There have been extensive discussions between Hiroshi and Dan Rose & John L where apparently alignment Google was OK for FB to update 1&3Papps (we shared we had a different historical impression)
- G is sending contradictory partnership messages: We're asking them to make strategic Android investments while simultaneously unilaterally decision making on strategic areas of FB
  - explicit message: this is blocking our ability to have a strategic partnership
- Locking down the platform + restricting us in this "use case" way is extremely limiting

Next steps:
- (G) Confirm with Jim the OEM team we are working to offload the immediate pressure
- (FB) Fill out use cases chart

3

EXHIBIT 1546-003

- ○ (Both) Set up exec meeting (Purnima/ Sagar & Marc/ FB Product counterpoint) to discuss
  - ○ Context setting: What was the original understanding? Are we changing our positions?
  - ○ Proposed solutions, via use case chart

Don/Marne call on 3/8: The conversation was as expected. Marne asked if things could go back to the way they were re FB's ability to install and update and Don said that it **wasn't possible**, but we would work with them on the update/install permissions as long as we knew what they needed and the conditions under which it would be used.

Next steps:
- ● MaryLiz/Nick to follow up with Facebook and gather specific details about where FB feels it needs permissions, and the scope of the impact if permissions are not granted:

Exhaustive Set of Use Cases			
Use case 1: *(e.g. Dynamic preload of FB4A or FBLite on first device bootup)*	Use case 2:	Use case 3:	...
Package Install Permission (INSTALL_PACKAGE_UPDATES) ● Why permission is needed for this use case: ● What is the specific user harm if permission is not granted: ● What is the size the impact:			
Update Permission (INSTALL_SELF_UPDATES) ● Why permission is needed for this use case: ● What is the specific user harm if permission is not granted: ● What is the size the impact:			

- ● Play BD/Top Partners to lead evaluation what permissions may be appropriate for each use case, and whether Google would like to grant those permissions.

TL;DR - Facebook ships an installer that updates their 1P products when bundling preloads. Android BD is pursuing deals which offer OEMs commercial incentives in exchange for restricting 3P installers (among many other things). **(Unfortunately, FB discovered this through OEMs,which is not ideal).** Facebook is asking for an exception for their installer based on a purported verbal agreement with P&E execs 3-4 years ago. Facebook has asked for the ability to both install and update its applications directly (outside of the Play store).

The RSA is **designed to protect users** (example from random things being installed without their understanding or consent), however, eliminating the FB installer was neither the goal nor is it the panacea for doing so. Interestingly, it has opened up an opportunity to have meaningful conversations with FB around permissions, which could lead to positive outcomes if done correctly.

Separately, we are trying to limit install packages permission in apps as they expose users to significant risk by being able to install as many other apps as they want to, in addition to updating themselves. In Android P we separated the install and update permissions - and created two new privileged permissions (available only to privileged preloaded apps).
- ● INSTALL_SELF_UPDATES (source) - allows an app to install updates to itself only, but not install new apps or updates to other apps.

4

Comment [5]: Jim Kolotouros (Google)
Richard Turner (Google)

Is there clarity on you can move forward with OEMs so we can unlock PDP?

Is it granting Update Permissions with ability to grant Install Permissions by Google in writing?

Comment [6]: we already gave FB wide latitude on Updated permissions. We just need clarity on precise Install permissions that are required and we can then provide the waiver, if appropriate

Comment [7]: To confirm -- A waiver to OEMs for those specific permissions that Nick's table is trying to summarize. And we would grant those permissions on a device-by-device basis. Right?

Comment [8]: Jim Kolotouros   Is "giving FB wide latitude on Update" a one-off exception for just FB or does it apply to all developers who meet certain criteria? Looking to understand whether we're already giving FB special treatment or not. Thanks!

Comment [9]: just FB

Comment [10]: and they still need to comply with Play policies.

Comment [11]: Does the installer that is preloaded only have functionality to install / update 1P FB products, or can it go beyond that and also install 3P products?

Comment [12]: our understanding is it only has 1P capabilities, but hwr it's unclear if it's only limiting functionality to 1P but has capabilities for 3P

Comment [13]: Per my understanding, OEMs (Oppo/Vivo/Oneplus/HMD) have terms of FB rep & warrant the installer will be used solely for FB app update in their OEM/FB contracts. This seemed to be contractually mitigated.

Comment [14]: The specific provision is that apps cannot have "install_packages" permissions, but there are a significant number of carveouts that are provided.

Comment [15]: Have added some detail on this below, but details on the carvouts are definitely important to include.

Comment [16]: We wouldn't share this with FB, but for example, with Motorola, we gave carveouts to carrier app stores, digital turbine, OEM app stores

Comment [17]: IIRC, the so called agreement was that we would not kick them out of the store, and the would not direct install ads or update themselves. I have personally observed them blatantly violating the updating of themselves on my device in a much higher rate than they can reasonably claim is due to play no updating themselves (i am always on wifi and plugged in nightly)

EXHIBIT 1546-004

- INSTALL_PACKAGE_UPDATES (source) - allows an app to install updates to existing installed apps, but not install new apps.

Going into the FB discussion we believed the Update permission would suffice for FB's needs. However, FB is asking for broad approvals for both permissions.

Why Facebook Cares - Google Play install and upgrade success rates are a recurring complaint for Facebook. They are unhappy with the friction caused by unauthenticated Play users (7% of Android users and 4% in India) and high data costs (Facebook can zero-rate when using their installer, although primary market with update rate issues is India and zero-rating is illegal) which both suppress upgrade success rates. In some markets, 50%+ of FB users upgrade their app off-Play. From Facebook's perspective, forcing use of Play for upgrades poses a user safety risk.

Google Perspective - Based on past conversations, FB sees these permissions as integral to their ability to preserve option value to run their own app store, update all of their company owned apps in case of a Google dispute or simply wanting to get features out faster to the user. FB uses the extenuating off play argument, but their actions suggest this is not their motivation, as we have several effective solutions to meet their needs on all GMS devices.

- All RSA phones have Play and all MADA apps on it, so FB could be easily updated by Play.
- The in-app-update API could be used to ask or force users to update via Play.
- The Play P2P feature would enable updates for apps side loaded via ShareIt or Xender
- Apps preloaded by OEMs are automatically updated by Play even if the user never signs into Google.

So on a GMS device the only reason FB would need an app installer/updater in addition to a pre-installed Katana is to force update the user without respecting the users' wishes in terms of update frequency and conditions (wifi, battery, storage).

Comment [18]: there should be room to push back here; population is actually pretty small

Comment [19]: do we have data to support this? FB tends to claims it's a large chunk of their users

Comment [20]: according to android metrics, it is 7% of users

Comment [21]: for reference, 4% in India

Comment [22]: i don't buy this at all. It's their product team wanting to ship feature faster when users don't really care about the updates, this is the same story from any developer

5

EXHIBIT 1546-005

Marne Levine, VP Partnerships at Facebook has reached out to Don and they are scheduled to speak on Monday. On Thursday 3/5, Google shared the proposed solution of allowing Facebook to access the "update permissions" for specific devices, in order to alleviate any immediate impact to Facebook's business. Facebook however would like access to the "install permissions" as well. Providing Facebook with access to install permissions runs counter to Android's RSA framework (no install permissions allowed in the Premier Tier) and is currently blocking OEMs from signing RSA agreements and, thus, moving forward with critical PDP devices in EMEA. Today, Play Product leadership has also raised concerns regarding the update permissions (see below). Facebook/Marc Shedroff had asked for a "blanket waiver" while we work out a longer-term plan. But FB has yet to provide any visibility into the precise use case that they would like the install permission to be used for, even though they had committed to providing such detail.

FB/Marc has been notified that our global OEM team is awaiting waiver requests from OEM's and we are prepared to offer wide latitude on update permissions. The OEM's are also on notice to ask for the precise nature of the "install" permission needed so they can then come to Google with the detail of such request. It would be helpful if, in parallel, FB provided such transparency.

JimK concern: to the extent we grant a short-term, blanket install update while being ignorant about it's exact nature, it might be tough to get the horse back into the barn if the market assumes this is a long-term waiver (i.e., one can easily envision FB coming back to us in two months and saying "all our partners are now expecting this permission... not sure it will be easy to retract it." There are shades of Sonos here.)

Goal of the call with Marne would be to get FB to document why they need these permissions given the associated user risks and the availability of alternative solutions, while letting them know we are bending over backwards to accommodate their request.

Suggested talking points -
- We can both agree that these permissions when used inappropriately expose users to significant risks and must be used only when absolutely necessary and under very narrowly defined conditions. That said, we want to understand your needs and figure out appropriate solutions.
- Would it be helpful if I gave some context for the changes to permissions? (See context below)
- Android and Play product leaders have been unable to understand your needs. It would be helpful for us to see your use cases documented, so our teams can work together to address them.
- Android and Play product leaders were frankly shocked by your request for broad install permissions, given the associated user risk. Our product leads met with yours to discuss this on Wednesday, and are waiting to hear back on the ETA for a use case docs. It is difficult for me to help unblock when we don't understand the problem.
- Since early conversations about these permissions several years back we have made significant progress on safer alternatives, and we are confident that we can meet all your needs. We would like to discuss them with your team once we understand your needs.
- For update permissions, like with all our permissions, we want to strike the right balance between user safety (your stated reason) and user trust/experience. For example - FB force updating your apps more frequently without regard to user stated preferences for app updates is an area of concern for us. We have observed that FB often updates apps on our devices despite these apps being regularly updated by Play, causing user confusion. It would be helpful to understand why.
  - NOTE: These updates violate Play policy, however, we may not want to point to that on this call - "An app distributed via Google Play may not modif"y, replace, or update itself using any method other than Google Play's update mechanism."

6

Comment [23] Jon Gold (Google)
Anna Kartasheva   is this enough detail to describe the precise prohibitions associated with PDP and RSA Premier/Optimized/Core tier? Might be worth noting if there are update prohibitions as well, which could be delivered via a 3P installer.

Comment [24]: I don't think we have restrictions on this from for Core or Optimized. Nor do we restrict the concept of updating explicitly.

Anna Kartasheva   -- do you disagree?

Comment [25]: I'm pretty sure Core and Optimized are not the issue (and won't be)... I think we should include a surgical description of the Premiere tier prohibition...

Comment [26]: Jamie Rosenberg
Sagar Kamdar
Paul Bankhead   does this sound right?

I am assuming Don's call with Marne would focus on understanding their needs.

Should we signal that we will be open to providing them some relief for a the next couple of months as long as they engage with us and share their needs?

Comment [27]: Purnima Kochikar
Jim Kolotouros

we should make it clear we said wed like to get a doc on their install usecase and they said they would do it but we never got a timeline back for that.

Comment [28]: +1. Added.

Comment [29]: I think we need to hit this point harder... we have not hear what their precise needs/requirements are even though Marc committed them to us, and they are being evasive. I'd suggest including the text of my IM to Shedroff so Don can say "I've already activated my global OEM team to be ready to receive waiver requests and provide them on updates, and get more detail on installs, once we know what you need."

EXHIBIT 1546-006

Thursday March 5, Recap of Meeting with Facebook:
(Full notes here)
- FB/Google meeting to fact-find (with no commitments of actions) and the following representation:
  - **Attendees**
    - **Android PM**: Sagar, Charmiane, Ed
    - **Play BD**: Purnima, Nick/ML
    - **FB:** Iris, Adam, Jim, Marc, Sam (PM)
  - **AIs**
    - Sagar talking to Jim & Jamie for a waiver in the short term
    - Charmaine and Ed to connect with FB PM team to discuss long term solutions for P+ devices.
  - **Meeting Notes**
    - [FB - Sam] Facebook's intent was always to support installs and updates of FB apps (not just app updates)
    - [Sagar] Hoping to help Facebook transition to the using the permission on new P+ devices
    - [FB- Sam] Example: FB4A and FBLite - feature is a dynamic FB preload, requires moving package that they may have preloaded and changing from one to the other (done before load screen)
    - [FB - Sam] Other Examples: use installer instead of web install for better security, also for oculus installer
    - [Sagar] Need to get together to chat through how we can create a policy that we can apply universally. Principles based approach. Hostile downloaders are what we are trying to battle here.
    - [FB - Sam] Pretty extensive hardcoded restrictions on silent installs. Facebook can almost guarantee that this can't happen. We are very aligned.
    - [Sagar] Will go back to Jim and advocate for install permission for the first example but it's closer to the case we are worried about.

Historical Context - 2015/2016
After Google concern in 2015/2016 about Facebook's use of its own App Installer, Google approached FB with an offer to have Facebook use Alley Oop - the inline install solution powered by Play. One of the original conditions of the deal was that FB would be disallowed from distributing an app installer and installing their apps/or others outside of Play. Facebook rejected this condition and so we instead created a 6-month test of Alley-oop that did not include this condition (Simba deal, non renewing and no longer in effect). It was amended one time to extend the deal by another 9 months. It was a non-renewing deal so it is no longer in effect.

Upgradability Concerns - Late 2019/Ongoing
Facebook has also been subverting the Play upgrade path via self-updating code. In late November 2019, Play discovered that the Facebook app Express Wifi was self-updating against Play policy. After much discussion, FB removed the self-updating code with the assurance from Google that we would continue to discuss improving upgrade success rates . Facebook was concerned that Express Wifi users would be stranded when a critical security update was needed. In Late January 2020, it was discovered that another Facebook app was using self-update code. This time, Facebook responded quickly and agreed to remove the code once we raised the concern.

During the annual Facebook/Play engineering summit in February 2020, the teams discussed upgradability in detail. The Play PM team described the roadmap for In App Updates and the plans to enable auto-update over the mobile network on an app by app basis. Facebook teams were excited by the potential of the IAU interface to drive much more significant update rates. However, there is a fundamental misalignment for non-Play Facebook users and to what lengths Play will go to solve the problem for off-Play distribution, which is still prevalent. **In some markets, 50%+ of FB users upgrade their app off-play.** Friction behind Play upgrade rate gap include users needing to create a Google account, the cost of data (FB has many Zero-rate deals with carriers in affected markets) and general UX friction.

7

Comment [30]: Sagar Kamdar   sagar do we really want to do this? The user impact of FB force updating themselves all the time without regard to user stated preferences for app updates is a problem. FB updates themselves all the time on my device despite me being regularly updated by play. _Assigned to Sagar Kamdar_

EXHIBIT 1546-007

Current Escalation - Began on 3/2/20

Facebook contacted us with their version of the story, which is that senior P&E execs (Jamie & Hiroshi) blessed their use of an installer, with some specific conditions: only to update their own 1P apps (no installation of non FB apps), only for preload deals (not to distribute via other channels), and only when the user has not upgraded through Play (at which point Play will own the upgrade flow).

Facebook heard through their OnePlus contact of the Google PDP program: the Android BD team is negotiating deals with OEMs to adhere to specific configurations in exchange for commercial upside. The configuration restrictions include preventing preloading 3P installers with a few carved out exceptions (1P app store installers and carrier/Play auto-install capabilities). **Facebook is asking Google to clarify that we will give their installer an exception in these deals and we are not trying to target their use case.**

- **A large percentage of Facebook users are acquiring and upgrading their apps outside of Play.** Facebook is usually reluctant to share exact numbers, but there are multiple markets where 50%+ of their users are upgrading outside Play. We estimate that these users account for a double-digit percentage of their overall userbase.
- **Facebook doesn't want to be totally dependent on Google to reach their users.** Strategically, it makes sense for Facebook to want a way around Play in the event that the relationship goes sour, or Play becomes ineffective at serving apps to users.
- **They position this issue as fundamentally about user safety.** If Facebook cannot patch their apps with relative certainty that users will pick up the upgrade quickly, users are at risk. In the case where a critical security vulnerability is found, users will be vulnerable if an upgrade cannot be taken up by the majority of users without incurring costs (money or friction).
- ***OEM contractual obligation***. Some key OEMs (Oppo/Vivo/Oneplus/HMD) have contracts in place with FB for FB app & App Installer preloads since mid of 2019. FB has represented and warranted the App Installer will be used solely for FB app upgrades purpose in the contract with OEMs except in Oppo's version.
  - * for internal reference only and please don't bring up with FB.

Short Term:
- **Allow Facebook to access update permissions in OEM deals (rather than update and install permissions), with a plan to eliminate over time as Play upgrade rate improves**
  - **Pros:** Maintains user safety, will not jeopardize other high priority Android/Play priorities with Facebook (Image quality party with iOS)
  - **Cons:** Fairness issue in the ecosystem, does not satisfy Facebook's entire request
- **Hold the Line**. Proceed with OEM deals, restrict Facebook preloading an installer, and enforce as necessary.
  - **Pros:** Ensures fairness across the ecosystem.
  - **Cons:** Damage to the Facebook relationship and potential to jeopardize other projects with FB (including the Instagram image quality issue resolution)

Medium Term:
- **Enable mirror apps (ShareIt/Xender) to carry the latest versions of Play apps in combination with Play upgrade rate increases.**
  - **Pros:** Drastically reduces the of the problem without creating a fairness issue
  - **Cons:** One time and ongoing Eng cost, does not completely eliminate strategic control issues for Facebook.

Long Term:
- **Eliminate upgrade friction for certain (or all) apps.** Create a technical path for certain apps to push upgrades through Play without needing to authenticate. Enable zero-rating deals between Developers and Carriers to pass through to Play.

8

Comment [31]: I would ask Jon Gold or Anna Kartasheva for the latest executive thinking on apps with install package rights.

Comment [32]: We have never heard of this before. How does the user initially download any of the FB apps?

Comment [33]: Combination of direct P2P, apk mirror sites, and preloads

Comment [34]: but FB the main app has 5B downloads on Play Store... I don't think they have that many users. How do they reconcile that fact?

Comment [35]: They are reluctant to share numbers (we should push them hard on this), but claim that double digit percentage of their users are off-Play and in some markets 50% of users are upgrading outside of Play.

Comment [36]: Why is this different from the 1M other apps hosted on the play store?

EXHIBIT 1546-008

Considerations:
- **Business**
  - Is this an exception we're granting only to Facebook?
    - What are the implications of this for our other RSA deals?
    - What other developers would want this type of exception/functionality?
  - Is there concern about granting Facebook the ability to update their 1P apps that are downloaded via the Play Store (and not only preloaded 1P apps)?
  - How much of a "give" should we consider this to be for Facebook?
    - Is there something we should consider asking for in return?
  - What are some real examples of "user harm" that Facebook uses to justify their need for the ability to update apps directly?
  - HMS devices will likely not prohibit Facebook installer on their devices making their devices more appealing to operators.
- **Technical**
  - Why are we not considering offering INSTALLER_SELF_UPDATE? Won't this fix the original ask for preloaded apps to update themselves?
  - Does the INSTALL_PACKAGE_UPDATES permission only apply to the APK it is attached to? Or does it also enable an APK (such as FB installer) to update other APKs?
    - A: It allows the package to update anything.

> **Comment [37]:** yes, see https://play.google.com/about/privacy-security-deception/malicious-behavior/
>
> "An app distributed via Google Play may not modif"y, replace, or update itself using any method other than Google Play's update mechanism."

> **Comment [38]:** in the history of this conversation, i haven't heard any. it has always been about hypothetical needs to update apps ASAP.
>
> most likely, the real issue is long tail of app versions in some markets and having the ability to force update is helpful.

> **Comment [39]:** Yes +1 we need to push them on this point.

> **Comment [40]:** Tristan Ostrowski
> Jim Kolotouros
>
> **Redacted - Privilege**

Meeting notes:
- Sam: Product Lead for FB Preloads program: they were surprised/ unaware of policies: this context is super helpful
  - The use-cases have grown, and it's outside the spirit of the policy / we're breaking the user trust> hadn't heard this succinctly before
- Context:
  - Custom infrastructure allows them to "create a best version of our apps across Android"
  - Openness of Android does mean we can move faster on Android
  - Back up plan/ Insurance plan: In case Play did kick us off from the store
  - We don't want to give up the keys to the car bc it allows us to continue to innovate & identify future optimizations; allergic to dependencies

3/6 Meeting

- Dynamic preload needs to be a solution that gest them off of using Install perm
- Focused on what it would look like to get off install perm even though Sam is not a decision maker
- Worried about experimentation/metrics as it's a red herring and we disagree on it
-

9

GOOG-PLAY-007278689

EXHIBIT 1546-009

GOOG-PLAY-007278681

Metadata

All Custodians	Christopher Li;Cunningham, Edward;Donald Harrison;Edward Cunningham;Glick, Kobi;Jamie Rosenberg;Jim Kolotouros;Jon Gold;Kobi Glick;Kochikar, Purnima;Paul Bankhead;Purnima Kochikar;Sagar Kamdar	SEMANTIC
Custodian	Purnima Kochikar	SEMANTIC
Date Created	03/02/2020 11:49 pm	SEMANTIC
Date Modified	11/12/2020 2:45 am	SEMANTIC
Filename	Executive Brief - Facebook Installer Pre_1-8gF6tjDO66ac_WBThNH4Yqi5Htfs6CABDDlqlgTzNE.docx;Executive Brief - Facebook Installer Prel_1-8gF6tjDO66ac_WBThNH4Yqi5Htfs6CABDDlqlgTzNE.docx;Executive Brief - Facebook Installer Prelo_1-8gF6tjDO66ac_WBThNH4Yqi5Htfs6CABDDlqlgTzNE.docx;Executive Brief - Facebook Installer Preloa_1-8gF6tjDO66ac_WBThNH4Yqi5Htfs6CABDDlqlgTzNE.docx;Executive Brief - Facebook Installer Preload E_1-8gF6tjDO66ac_WBThNH4Yqi5Htfs6CABDDlqlgTzNE.docx;Executive Brief - Facebook Installer Preload _1-8gF6tjDO66ac_WBThNH4Yqi5Htfs6CABDDlqlgTzNE.docx;Executive Brief - Facebook Installer Preload_1-8gF6tjDO66ac_WBThNH4Yqi5Htfs6CABDDlqlgTzNE.docx;Executive Brief - Facebook Installer_1-8gF6tjDO66ac_WBThNH4Yqi5Htfs6CABDDlqlgTzNE.docx	SEMANTIC

EXHIBIT 1546-010